The present listing of claims replaces all prior versions.

1. (Previously Presented) A method of treating sleep disordered breathing comprising the steps of:

implanting a device in a patient,

determining the likelihood of said patient being asleep,

delivering treatment so as to prevent airway collapse if said patient is likely to be asleep,

determining the presence of an obstruction in said patient's airway, and

if an obstruction is present increasing said treatment until said obstruction is no longer present,

wherein said device includes a stimulator for providing electrical stimulation to afferent nerves, a postural sensor to sense said patient's postural state, a real time clock, and a detector to detect transthoracic impedance changes by 1) emitting high frequency electrical pulses to traverse the transthoracic cavity, 2) calculating an instantaneous transthoracic impedance signal across said transthoracic cavity, and 3) comparing said instantaneous signal to a recent average of instantaneous transthoracic impedance signals,

said treatment comprises operating said stimulator to apply electrical stimulation to afferent nerves,

said presence of an obstruction is determined by detecting a change in transthoracic impedance, and

the likelihood of said patient being asleep is determined based upon the time of day as identified by said real time clock together with the patient's postural state as sensed by said postural sensor.

2. (Cancelled)

3. (Previously Presented) The method of claim 1 wherein the site of electrical stimulation is within or adjacent to the genioglossus muscle.

4. (Previously Presented) The method of claim 1 wherein the site of electrical stimulation is in the vicinity of the hypoglossal motor nucleus or excitatory afferent nerve pathways leading to this structure.

5. (Previously Presented) The method of claim 1 wherein the electrical stimulation comprises trains of electrical pulses.

6. (Previously Presented) The method of claim 5 wherein the train length is approximately 10-30 pulses.

7. (Previously Presented) A method of treating sleep disordered breathing comprising the steps of:

implanting a device in a patient,

determining the likelihood of said patient being asleep,

delivering treatment so as to prevent airway collapse if said patient is likely to be asleep,

determining the presence of an obstruction in said patient's airway, and

if an obstruction is present increasing said treatment until said obstruction is no longer present,

wherein said device includes a stimulator for providing mechanical stimulation to afferent nerves, a postural sensor to sense said patient's postural state, a real time clock, and a detector to detect transthoracic impedance changes by 1) emitting high frequency electrical pulses to traverse the transthoracic cavity, 2) calculating an instantaneous transthoracic impedance signal across said transthoracic cavity, and 3) comparing said instantaneous signal to a recent average of instantaneous transthoracic impedance signals,

said treatment comprises operating said stimulator to apply mechanical stimulation to afferent nerves,

said presence of an obstruction is determined by detecting a change in transthoracic impedance, and

the likelihood of said patient being asleep is determined based upon the time of day as identified by said real time clock together with the patient's postural state as sensed by said postural sensor.

8. (Previously Presented) The method of claim 7 wherein mechanical stimulation is performed by a piezo-electric mechanical element implanted at a site in the vicinity of the patient's upper airway.

9. (Previously Presented) The method of claim 8 wherein the piezo-electric mechanical element is implanted within or adjacent to the base of the genioglossus muscle.

10. (Previously Presented) The method of claim 7 wherein the mechanical stimulation is periodic.

11. (Previously Presented) The method of claim 10 wherein the duration of stimulation is on the order of several seconds of vibration.

12. (Previously Presented) The method of claim 7 wherein the mechanical vibration occurs at frequencies in the range of 10-50 Hz.

13. (Previously Presented) The method of claim 1 wherein stimulation is repeated in accordance with the detected state of the airway.

14. (Previously Presented) The method of claim 1 wherein stimulation is carried out in accordance with a model of Cheyne-Stokes Respiration.

15. (Previously Presented) An apparatus for treating respiratory disorders in a patient adapted for implant within or adjacent to the base of genioglossus muscle, comprising:

a piezo-electric mechanical element;

a detector to detect transthoracic impedance changes;

a controller adapted to elicit vibration of the piezo-electric mechanical element via an electrical signal to prevent airway collapse during sleep, to determine the presence of an obstruction, and to adjust said vibration upon the presence of an obstruction;

a real time clock for determining time of day; and

a postural sensor for sensing postural state;

wherein said piezo-electric mechanical element is vibrated only for combinations of time of day and postural state that indicate that said patient is likely to be asleep and if an obstruction is present increasing said treatment until said obstruction is no longer present,

the likelihood of said patient being asleep is determined based upon the time of day as identified by said real time clock together with the patient's postural state as sensed by said postural sensor,

said detector detects transthoracic impedance changes by 1) emitting high frequency electrical pulses to traverse the transthoracic cavity, 2) calculating an instantaneous transthoracic impedance signal across said transthoracic cavity, and 3) comparing said instantaneous signal to a recent average of instantaneous transthoracic impedance signals; and

said controller determines the presence of an obstruction is determined based upon a detected change in transthoracic impedance.

16-31. (Cancelled)

32. (Previously Presented) The method of claim 7 wherein stimulation is repeated in accordance with a detected change in transthoracic impedance.

33. (Previously Presented) The method of claim 7 wherein stimulation is carried out in accordance with a model of Cheyne-Stokes Respiration.

34. (Cancelled)

35. (Previously Presented) An apparatus for treating respiratory disorders in a patient adapted for implant within or adjacent to the base of genioglossus muscle, comprising:

a stimulator for providing electrical stimulation to a patient's afferent nerves;

a detector to detect transthoracic impedance changes;

a controller adapted to elicit electrical stimulation of said stimulator to prevent airway collapse during sleep, to determine the presence of an obstruction, and if an obstruction is present increasing said treatment until said obstruction is no longer present;

a real time clock for determining time of day; and

a postural sensor for detecting postural state;

wherein said stimulator provides stimulation only for combinations of time of day and postural state that indicate that said patient is likely to be asleep,

the likelihood of said patient being asleep is determined based upon the time of day as identified by said real time clock together with the patient's postural state as sensed by said postural sensor,

said detector detects transthoracic impedance changes by 1) emitting high frequency electrical pulses to traverse the transthoracic cavity, 2) calculating an instantaneous transthoracic impedance signal across said transthoracic cavity, and 3) comparing said instantaneous signal to a recent average of instantaneous transthoracic impedance signals, and

said controller determines the presence of an obstruction based upon said detector detecting a change in transthoracic impedance.

36. (Previously Presented) An apparatus for treating respiratory disorders in a patient adapted for implant within or adjacent to the base of genioglossus muscle, comprising:

a stimulator for providing stimulation to a patient's afferent nerves;

a detector to detect transthoracic impedance changes; and

a controller adapted to 1) determine whether said patient is likely to be asleep, 2) elicit stimulation from said stimulator upon determining that said patient is asleep to prevent airway collapse during sleep, 3) determining the presence of an obstruction, and 4) adjusting said stimulation upon the presence of an obstruction;

wherein said detector detects transthoracic impedance changes by 1) emitting high frequency electrical pulses to traverse the transthoracic cavity, 2) calculating an instantaneous transthoracic impedance signal across said transthoracic cavity, and 3) comparing said instantaneous signal to a recent average of instantaneous transthoracic impedance signals, and

said controller determines the presence of an obstruction based upon said detector detecting changes in transthoracic impedance.

37. (Previously Presented) An apparatus for treating respiratory disorders in a patient adapted for implant within or adjacent to the base of genioglossus muscle, comprising:

a stimulator for providing electrical stimulation to a patient's afferent nerves;

a detector to detect transthoracic impedance changes;

a controller adapted to elicit electrical stimulation of said stimulator to prevent airway collapse during sleep, to determine the presence of an obstruction, and if an obstruction is present increasing said treatment until said obstruction is no longer present;

a real time clock for determining time of day; and

wherein said stimulator provides stimulation for selected times of day when said patient is likely to be asleep,

the likelihood of said patient being asleep is determined based upon the time of day as identified by said real time clock,

said detector detects transthoracic impedance changes by 1) emitting high frequency electrical pulses to traverse the transthoracic cavity, 2) calculating an instantaneous transthoracic impedance signal across said transthoracic cavity, and 3) comparing said instantaneous signal to a recent average of instantaneous transthoracic impedance signals, and

said controller determines the presence of an obstruction based upon said detector detecting changes in transthoracic impedance.